

- A4
19. [(New)] The method of claim 1 wherein said chlorine dioxide gas contains less than about 5% of chlorine gas.
 20. [(New)] The method of claim 1 wherein said chlorine dioxide gas contains less than about 0.5% chlorine gas.
 21. [(New)] The method of claim 1 wherein said volume is maintained at a slightly negative pressure to areas located outside of said volume.
 22. The method of claim 4 wherein said chlorine dioxide solution has an equilibrium partial pressure below about 26, 000 ppm V.
 23. [(New)] The method of claim 1 wherein said contents in said volume include surfaces that are gas penetrable.
 24. [(New)] The method of claim 1 which further comprises monitoring and controlling the dew point within said volume during said fumigation to avoid condensation.
 25. [(New)] The method of claim 1 wherein the temperature during the fumigating is 70-80°F and the relative humidity during the fumigating is 60-80%.
 26. [(New)] The method of claim 1 wherein the residual level of chloride dioxide in said volume during fumigating is 500 ppm V to about 3000 ppm V.
 27. [(New)] The method of claim 26 wherein the fumigating is carried out for about 8 to about 12 hours.
 28. [(New)] The method of claim 1 wherein the residual level of chloride dioxide in said volume during fumigating is maintained at about 750 ppm V for about 8 to about 12 hours.

29. [(New)] The method of claim 1 wherein the residual level of chloride dioxide in said volume during fumigating is maintained at about 1000 ppm V for about 8 to about 12 hours.
30. [(New)] The method claim 1 wherein the residual level of chloride dioxide in said volume during fumigating is maintained at about 3000 ppm V for about 8 to about 12 hours.
31. [(New)] The method of claim 1 wherein said volume requiring fumigation is contaminated with gram positive spores.
- A4 32. [(New)] The method of claim 31 where said spores are *Bacillus subtilis*.
33. [(New)] The method of claim 31 where said spores are *Bacillus anthracis*.
34. [(New)] The method of claim 1 wherein the humidity is reduced to less than about 35% during removal of the chlorine dioxide gas.
35. [(New)] The method of claim 1 wherein the removing of the chlorine dioxide gas takes at least 5-6 hours.